National Institute of Environmental Health Sciences

Air conditioning and intrahospital mortality during the 2003 heatwave in Portugal: Evidence of a protective effect

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Abstract:

OBJECTIVES: The objective of the study was to analyse the association between the presence of air conditioning in hospital wards and the intrahospital mortality during the 2003 heatwave, in mainland Portugal. METHODS: Historical cohort study design including all patients aged 45 or more who were hospitalised in the 7 days before the heatwave. The outcome was survival during the 18 days the heatwave lasted and during the 2 days after the end of the heatwave. A comparison group was also selected in four analogous periods without any heatwave event during January to May 2003. Data were obtained from the 2003 hospital discharges database. Air conditioning presence in hospital wards was determined using a survey sent to hospital administrations. A Cox-regression model was used to estimate the confounder-adjusted HR of death, during the heatwave and the comparison period, in patients in wards with air conditioning (AC+) versus patients in wards without air conditioning (AC-). RESULTS: 41 hospitals of mainland Portugal (49% of all hospitals in mainland Portugal) participated, and 2093 patients were enrolled. The overall confounder-adjusted HR of death in AC+ patients versus AC- patients was 0.60 (95% CI 0.37 to 0.97) for the heatwave period and 1.05 (95% CI 0.84 to 1.32) for the comparison group. CONCLUSIONS: The study found strong evidence that, during the August 2003 heatwave, the presence of air conditioning in hospital wards was associated with an increased survival of patients admitted before the beginning of the climate event. The reduction of the risk of dying is estimated to be 40% (95% CI 3% to 63%).

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Portugal

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cancer, Cardiovascular Effect, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): circulatory mortality

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : respiratory mortality

Other Health Impact: digestive disease mortality

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified